RISK MANAGEMENT

It's Risky Business, but That's a Good Thing

SAFETY & HEALTH LEARNING ALLIANCE

Call ***888-469-1280***
to participate and *enter the*
passcode ***8558376***

RISK MANAGEMENT

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SAFETY & HEALTH LEARNING ALLIANCE

Featuring Guest Speakers

Mark Nunn
Air Force Risk Management Program Manager

Dave Marciniak
General Services Administration Safety and Health Manager

Chris Toms
Coast Guard Senior Risk Management and Operations Research Analyst

SAFETY & HEALTH LEARNING ALLIANCE

Event Logistics

- Facilitator introduction
  - Mike Lipka, Knowledge Management Officer
    NASA Safety Center
- To ask a question
  - Dial *1 for the operator
  - Click the “Raise Hand” option
- The presentation will last approximately an hour and a half
- To get a closer look at the slides, select “Full Screen”
- Turn off the speakers on your computer

SAFETY & HEALTH LEARNING ALLIANCE

Agenda

- Goals of the Safety and Health Learning Alliance
- Today's Panel Speakers
- Discussion and key points
- Wrap-up and next event

SAFETY & HEALTH LEARNING ALLIANCE

Goals of the SHLA: the Four C's

- **COLLABORATE** Create a forum for collaboration
  - Repeatable process with trusted advisors
- **CONCENTRATE** Accelerate learning
  - "Quick hits" on timely, topical, and new approaches
- **CONTEXT** Learn from your peers—what they do and how they do it
  - Knowledge + Experience = Wisdom
- **CONNECT** Establish networking opportunities
  - Extend beyond events for personal and professional development

Learn more at https://nsc.nasa.gov/SHLA

SAFETY & HEALTH LEARNING ALLIANCE

Today's Panel Speakers

Mr. Mark Nunn

US Air Force Risk Management
Program Manager

Mr. Dave Marciniak

General Services Administration
Safety and Health Manager

Mr. Chris Toms

US Coast Guard
Senior Risk Management and
Operations Research Manager

SAFETY & HEALTH LEARNING ALLIANCE

Today's Agenda

- Organizational profile
- How your organization assesses and specifies risk
- How your organizations accept risk
- How risk is communicated up the management chain
- How agencies/organizations use risk tools to prioritize funding , operations, and activities
- Available risk training
- Lessons Learned in Risk Management

SAFETY & HEALTH LEARNING ALLIANCE

How your organization assesses and specifies risk

- What risk management tools do you use?
  - Risk matrix
  - Prioritization schemes
  - Alpha-numeric coding
  - Color coding
  - Quantification
  - Qualification
  - Uncertainty
  - Risk timelines
  - Aggregate risk
  - Standards
  - Probabilistic Risk Assessment (PRA)
  - Something else?

U.S. AIR FORCE

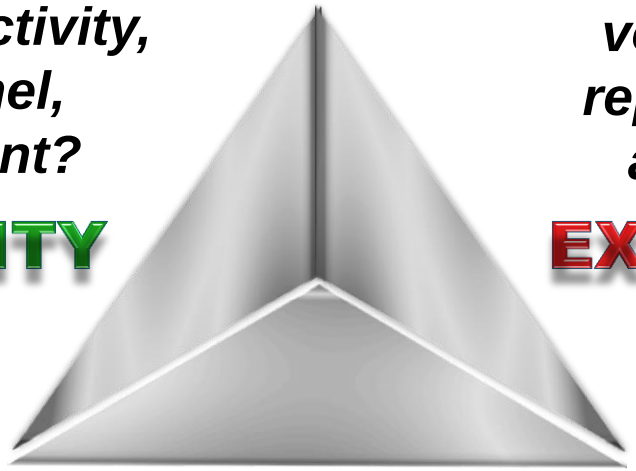
Assess Hazards

The potential impact on the mission / activity, personnel, equipment?

SEVERITY

The time, proximity, volume, or repetition to a hazard

EXPOSURE

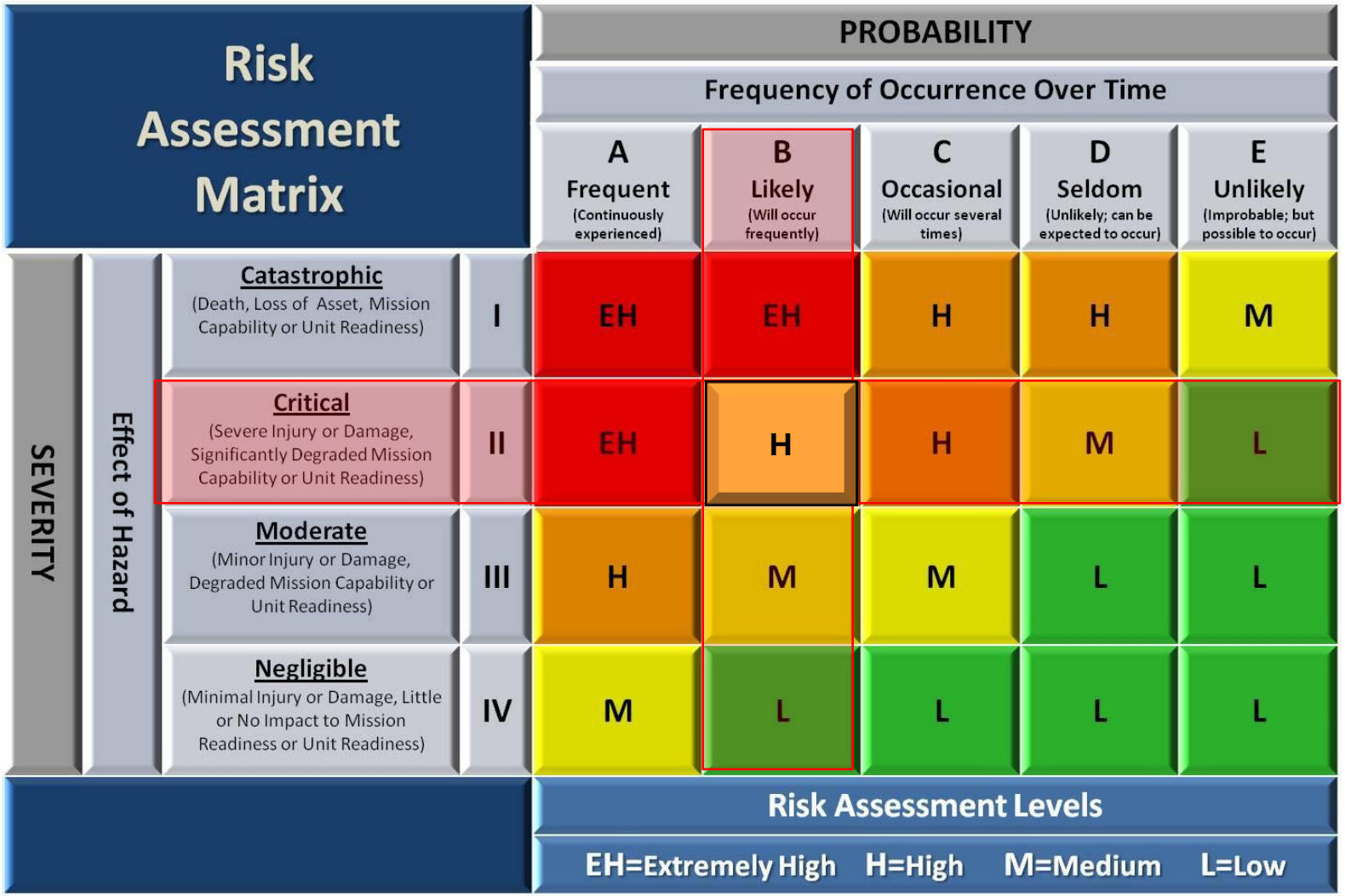


PROBABILITY

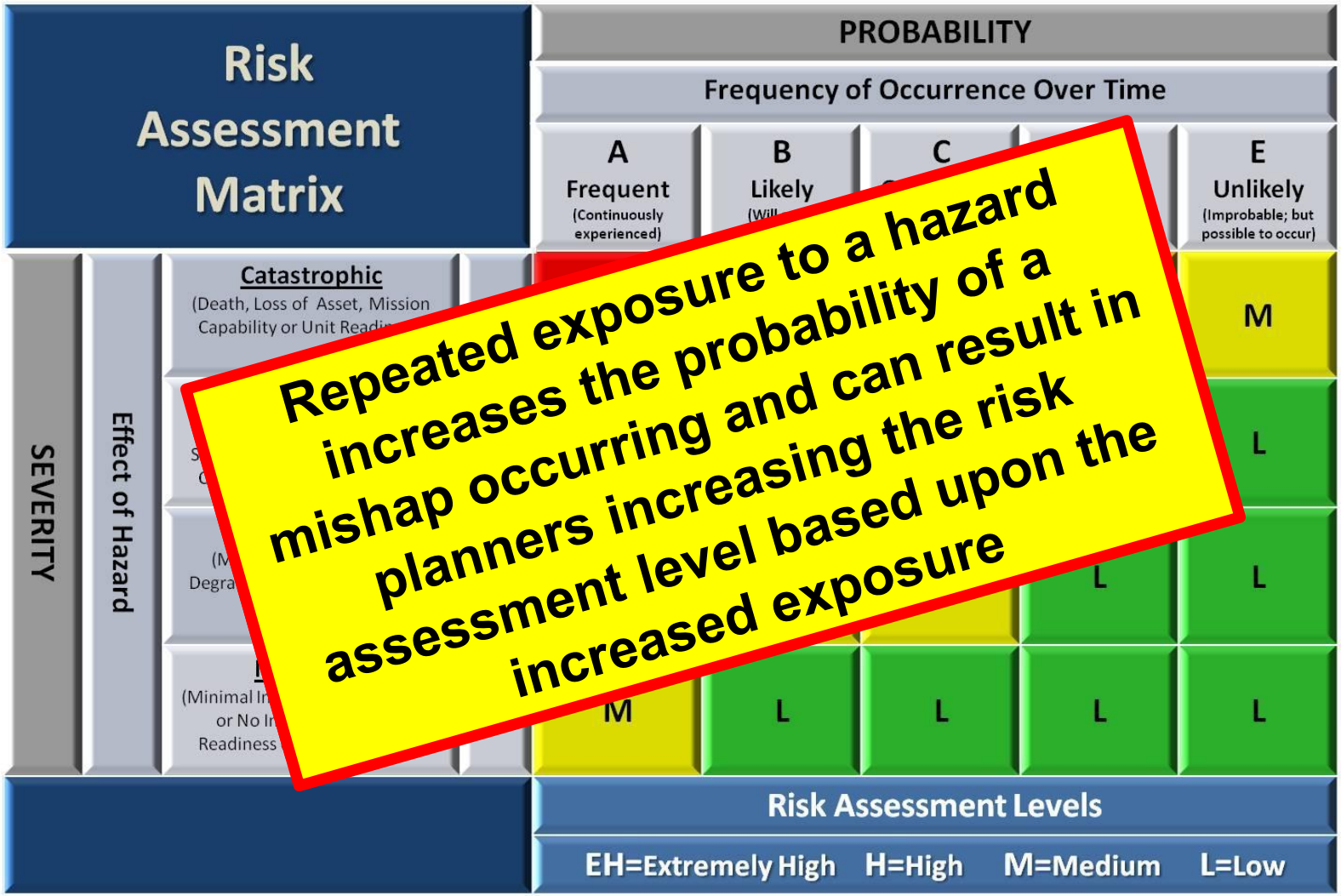
Likelihood that a particular hazard will cause a negative event as related to the severity of the hazard

U.S. AIR FORCE

Assess Hazards

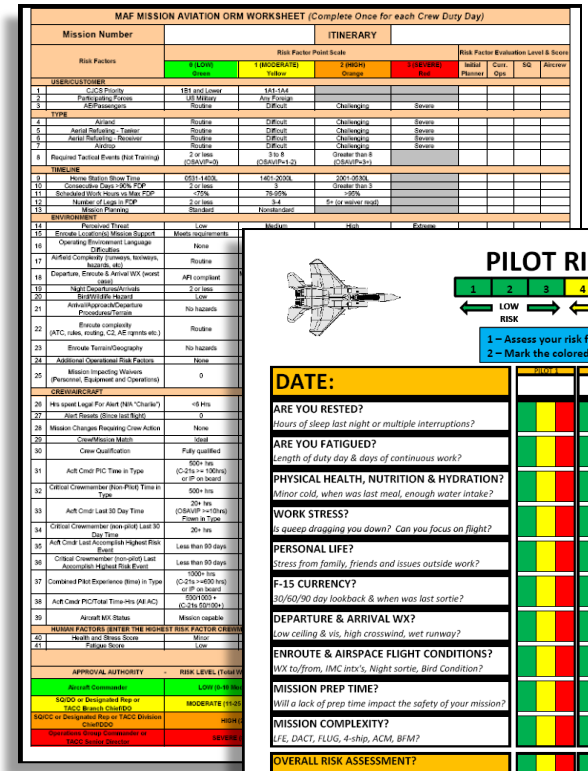


Assess Hazards



U.S. AIR FORCE

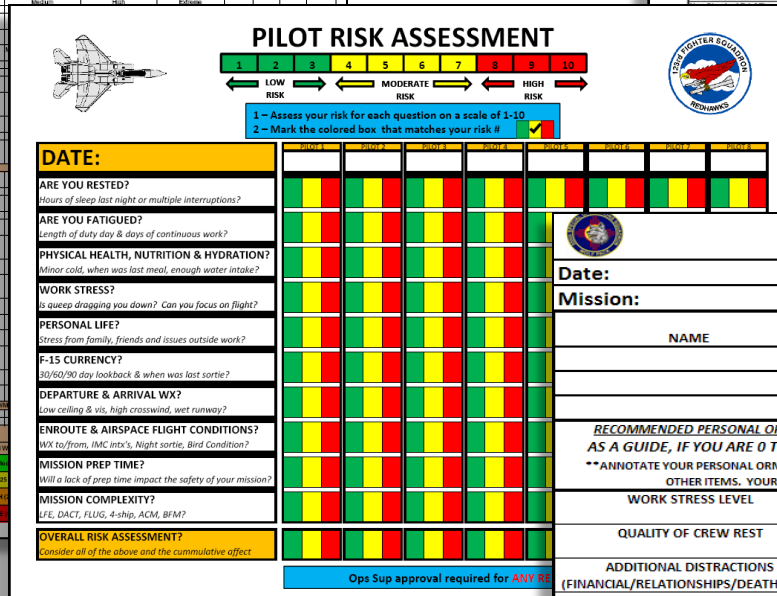
Aviation RM Assessment Worksheets


MAF MISSION AVIATION ORM WORKSHEET (Complete Once for each Crew Duty Day)

Mission Number | ITINERARY

Risk Factors	Risk Factor Point Scale: 0 (LOW) Green	1 (MODERATE) Yellow	2 (HIGH) Orange	3 (SEVERE) Red	Risk Factor Evaluation Level & Score: Initial Planner	Curr. Ops	SQ	Aircrew
USER/CUSTOMER								
1 C/JCS Priority	1B1 and Lower	1A1-1A4						
2 Participating Forces	US Military	Any Foreign						
3 AE/Passengers	Routine	Difficult	Challenging	Severe				
TYPE								
4 Airland	Routine	Difficult	Challenging	Severe				
5 Aerial Refueling - Tanker	Routine	Difficult	Challenging	Severe				
6 Aerial Refueling - Receiver	Routine	Difficult	Challenging	Severe				
7 Airdrop	Routine	Difficult	Challenging	Severe				
8 Required Tactical Events (Not Training)	2 or less (OSA/AFR=5)	3 to 8 (OSA/AFR=1-2)	Greater than 8 (OSA/AFR=3+)					
TIMELINE								
9 Home Station Show Time	0531-1400L	1401-2030L	2001-0530L					
10 Consecutive Days >90% FDP	2 or less	3	Greater than 3					
11 Scheduled Work Hours vs Max FDP	<75%	75-95%	>95%					
12 Number of Legs in FDP	2 or less	3-4	5+ (or waiver req'd)					
13 Mission Planning	Standard	Nonstandard						
ENVIRONMENT								
14 Perceived Threat	Low	Medium	High	Extreme				
15 Encroute Location(s) Mission Support	Meets requirements							
16 Operating Environment Language Difficulties	None							
17 Airfield Complexity (runways, taxiways, hazards, etc)	Routine							
18 Departure, Enroute & Arrival WX (worst case)	AFI compliant							
19 Night Departures/Arrivals	2 or less							
20 Bird/Wildlife Hazard	Low							
21 Arrival/Approach/Departure Procedures/Terrain	No hazards							
22 Enroute complexity (ATC, rules, routing, C2, AE rqmts etc.)	Routine							
23 Enroute Terrain/Geography	No hazards							
24 Additional Operational Risk Factors	None							
25 Mission Impacting Waivers (Personnel, Equipment and Operations)	0							
CREW/AIRCRAFT								
26 Hrs spent Legal For Alert (N/A "Charlie")	<6 Hrs							
27 Alert Resets (Since last flight)	0							
28 Mission Changes Requiring Crew Action	None							
29 Crew/Mission Match	Ideal							
30 Crew Qualification	Fully qualified							
31 Acft Cmdr PIC Time in Type	500+ hrs (C-21s >+ 100hrs) or IP on board							
32 Critical Crewmember (Non-Pilot) Time in Type	500+ hrs							
33 Acft Cmdr Last 30 Day Time	20+ hrs (OSA/IP >=10hrs) Flown in Type							
34 Critical Crewmember (non-pilot) Last 30 Day Time	20+ hrs							
35 Acft Cmdr Last Accomplish Highest Risk Event	Less than 90 days							
36 Critical Crewmember (non-pilot) Last Accomplish Highest Risk Event	Less than 90 days							
37 Combined Pilot Experience (time) in Type	1500+ hrs (C-21s >=600 hrs) or IP on board							
38 Acft Cmdr PIC/Total Time-Hrs (All AC)	500/1000 + (C-21s 50/100+)							
39 Aircraft MX Status	Mission capable							
HUMAN FACTORS (ENTER THE HIGHEST RISK FACTOR CREDITED)								
40 Health and Stress Score	Minor							
41 Fatigue Score	Low							

APPROVAL AUTHORITY	RISK LEVEL (Total R
Aircraft Commander	LOW (5-10 No
SQ/DO or Designated Rep or TACC Branch Chief/DO	MODERATE (11-25
SQ/DO or Designated Rep or TACC Division Chief/DDO	HIGH (2
Operations Group Commander or TACC Senior Director	SEVERE (2


PILOT RISK ASSESSMENT

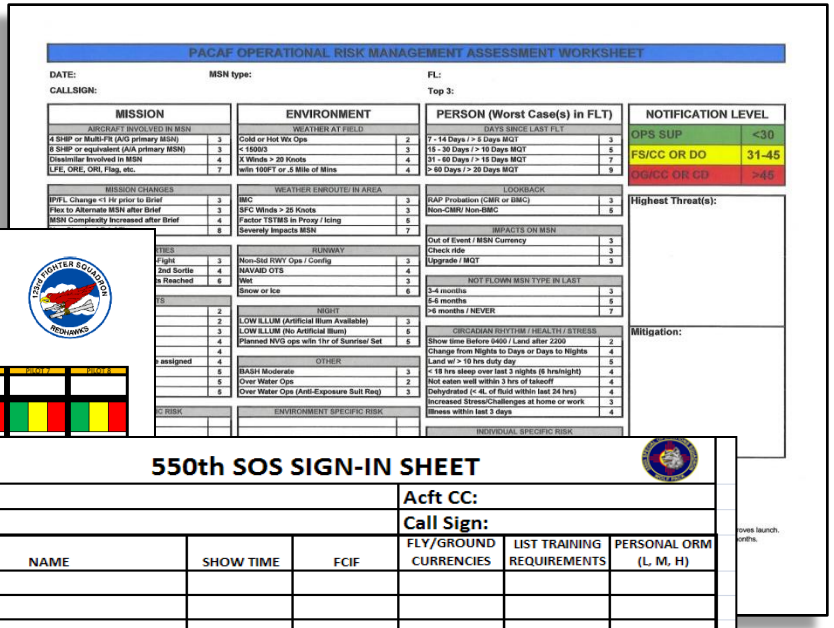
1 2 3 4 5 6 7 8 9 10

LOW RISK — MODERATE RISK — HIGH RISK

1 – Assess your risk for each question on a scale of 1-10
2 – Mark the colored box that matches your risk #

DATE:	pilot 1	pilot 2	pilot 3	pilot 4	pilot 5	pilot 6	pilot 7	pilot 8
ARE YOU RESTED? *Hours of sleep last night or multiple interruptions?*								
ARE YOU FATIGUED? *Length of duty day & days of continuous work?*								
PHYSICAL HEALTH, NUTRITION & HYDRATION? *Minor cold, when was last meal, enough water intake?*								
WORK STRESS? *Is queep dragging you down? Can you focus on flight?*								
PERSONAL LIFE? *Stress from family, friends and issues outside work?*								
F-15 CURRENCY? *30/60/90 day lookback & when was last sortie?*								
DEPARTURE & ARRIVAL WX? *Low ceiling & vis, high crosswind, wet runway?*								
ENROUTE & AIRSPACE FLIGHT CONDITIONS? *WX to/from, IMC intx's, Night sortie, Bird Condition?*								
MISSION PREP TIME? *Will a lack of prep time impact the safety of your mission?*								
MISSION COMPLEXITY? *LFE, DACT, FLUG, 4-ship, ACM, BFM?*								
OVERALL RISK ASSESSMENT? *Consider all of the above and the cummulative affect*								

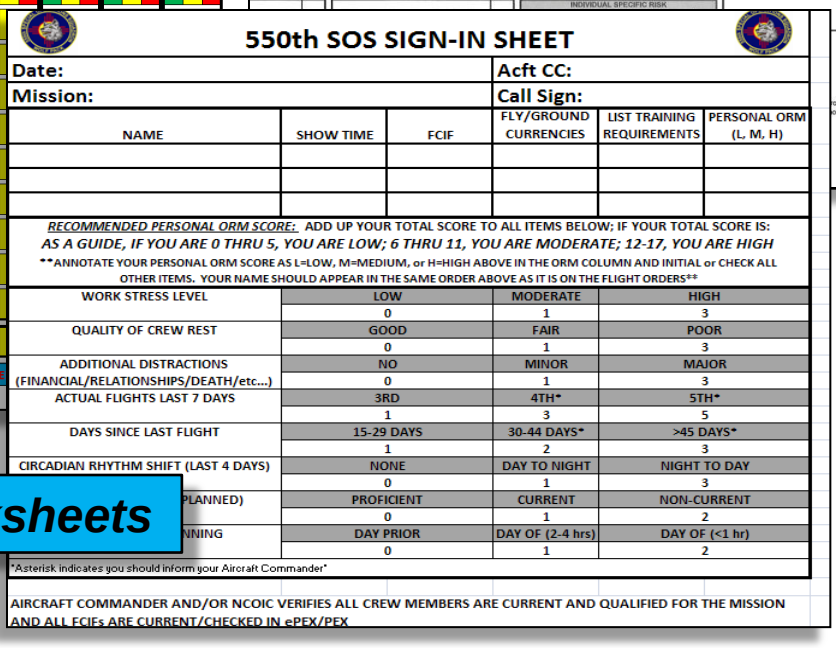
Ops Sup approval required for ANY R


PACAF OPERATIONAL RISK MANAGEMENT ASSESSMENT WORKSHEET

DATE: MSN type: FL:

CALLSIGN: Top 3:

MISSION		ENVIRONMENT		PERSON (Worst Case(s) in FLT)		NOTIFICATION LEVEL	
AIRCRAFT INVOLVED IN MSN		WEATHER AT FIELD		DAYS SINCE LAST FLT		OPS SUP	<30
4 SHIP or Multi-FR (A/G primary MSN)	3	Cold or Hot Wx Ops	2	7 - 14 Days / > 5 Days MQT	3	FS/CC OR DO	31-45
8 SHIP or equivalent (A/A primary MSN)	3	< 1500/3	3	15 - 30 Days / > 15 Days MQT	5		
Dissimilar Involved in MSN	4	X Winds > 20 Knots	4	31 - 60 Days / > 15 Days MQT	7	OG/CC OR CD	>45
LFE, ORE, ORI, Flag, etc.	7	w/in 100FT or .5 Mile of Mins	4	> 60 Days / > 20 Days MQT	9		
MISSION CHANGES		WEATHER ENROUTE/ IN AREA		LOOKBACK		Highest Threat(s):	
IP/FL Change <1 Hr prior to Brief	3	IMC	3	RAP Probation (CMR or BMC)	3		
Flex to Alternate MSN after Brief	3	SFC Winds > 25 Knots	3	Non-CMR/ Non-BMC	5		
MSN Complexity Increased after Brief	4	Factor TSTMS in Proxy / Icing	5				
	8	Severely Impacts MSN	7	IMPACTS ON MSN		Mitigation:	
TRIES		RUNWAY		Out of Event / MSN Currency	3		
-Flight	3	Non-Std RWY Ops / Config	3	Check ride	3		
2nd Sortie	4	NAVAID OTS	4	Upgrade / MQT	3		
s Reached	6	Wet	3	NOT FLOWN MSN TYPE IN LAST			
TS		Snow or Ice	6	3-4 months	3		
	2	NIGHT		5-6 months	5		
	2	LOW ILLUM (Artificial Illum Available)	3	>6 months / NEVER	7		
	3	LOW ILLUM (No Artificial Illum)	6	CIRCADIAN RHYTHM / HEALTH / STRESS			
	4	Planned NVG ops w/in 1hr of Sunrise/ Set	6	Show time Before 0400 / Land after 2200	2		
	4			Change from Nights to Days or Days to Nights	4		
assigned	4	OTHER		Land w/ > 10 hrs duty day	5		
	5	BASH Moderate	3	< 18 hrs sleep over last 3 nights (6 hrs/night)	4		
	5	Over Water Ops	2	Not eaten well within 3 hrs of takeoff	4		
	5	Over Water Ops (Anti-Exposure Suit Req)	3	Dehydrated (< 4L of fluid within last 24 hrs)	4		
IC RISK		ENVIRONMENT SPECIFIC RISK		Increased Stress/Challenges at home or work	3		
				Illness within last 3 days	4		
				INDIVIDUAL SPECIFIC RISK			


550th SOS SIGN-IN SHEET

Date: Acft CC:

Mission: Call Sign:

NAME	SHOW TIME	FCIF	FLY/GROUND CURRENCIES	LIST TRAINING REQUIREMENTS	PERSONAL ORM (L, M, H)

RECOMMENDED PERSONAL ORM SCORE: ADD UP YOUR TOTAL SCORE TO ALL ITEMS BELOW; IF YOUR TOTAL SCORE IS: AS A GUIDE, IF YOU ARE 0 THRU 5, YOU ARE LOW; 6 THRU 11, YOU ARE MODERATE; 12-17, YOU ARE HIGH

ANNOTATE YOUR PERSONAL ORM SCORE AS L=LOW, M=MEDIUM, or H=HIGH ABOVE IN THE ORM COLUMN AND INITIAL or CHECK ALL OTHER ITEMS. YOUR NAME SHOULD APPEAR IN THE SAME ORDER ABOVE AS IT IS ON THE FLIGHT ORDERS

WORK STRESS LEVEL	LOW	MODERATE	HIGH
	0	1	3
QUALITY OF CREW REST	GOOD	FAIR	POOR
	0	1	3
ADDITIONAL DISTRACTIONS (FINANCIAL/RELATIONSHIPS/DEATH/etc...)	NO	MINOR	MAJOR
	0	1	3
ACTUAL FLIGHTS LAST 7 DAYS	3RD	4TH*	5TH*
	1	3	5
DAYS SINCE LAST FLIGHT	15-29 DAYS	30-44 DAYS*	>45 DAYS*
	1	2	3
CIRCADIAN RHYTHM SHIFT (LAST 4 DAYS)	NONE	DAY TO NIGHT	NIGHT TO DAY
	0	1	3
PLANNED)	PROFICIENT	CURRENT	NON-CURRENT
	0	1	2
NNING	DAY PRIOR	DAY OF (2-4 hrs)	DAY OF (<1 hr)
	0	1	2

Asterisk indicates you should inform your Aircraft Commander

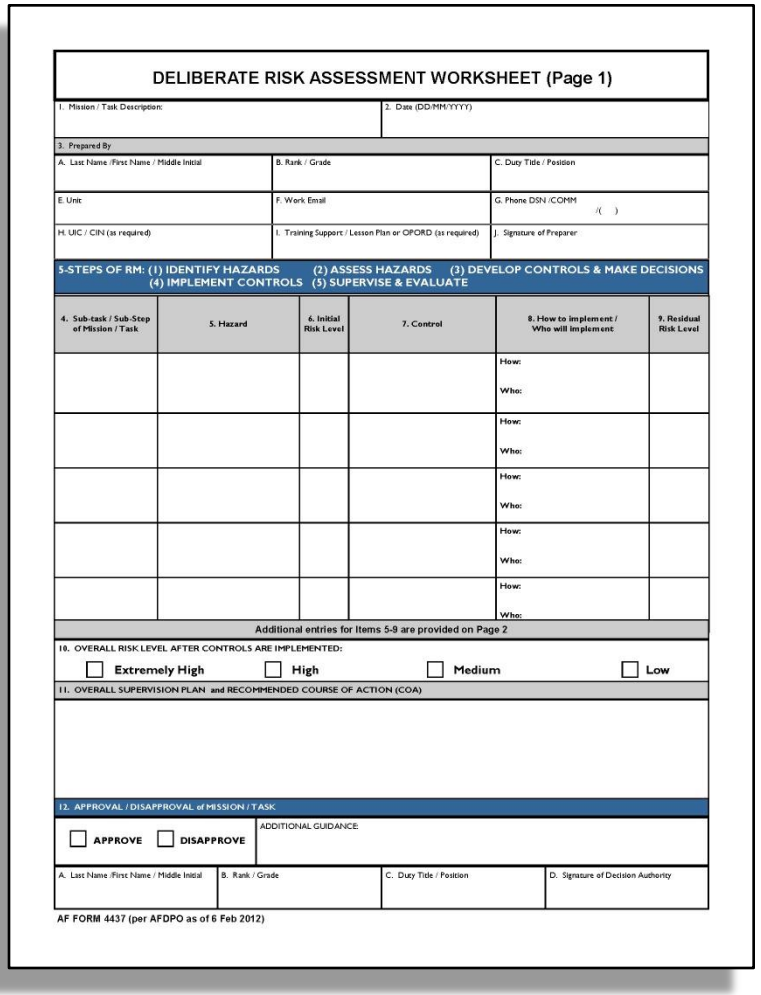
AIRCRAFT COMMANDER AND/OR NCOIC VERIFIES ALL CREW MEMBERS ARE CURRENT AND QUALIFIED FOR THE MISSION AND ALL FCIFs ARE CURRENT/CHECKED IN ePEX/PEX

Many Variations of Aviation Worksheets

U.S. AIR FORCE

Deliberate Risk Assessment Worksheet

(AF Form 4437)



DELIBERATE RISK ASSESSMENT WORKSHEET (Page 1)

1. Mission / Task Description:		2. Date (DD/MM/YYYY)
3. Prepared By		
A. Last Name /First Name / Middle Initial	B. Rank / Grade	C. Duty Title / Position
E. Unit	F. Work Email	G. Phone DSN /COMM /( )
H. UIC / CIN (as required)	I. Training Support / Lesson Plan or OPORD (as required)	J. Signature of Preparer

5-STEPS OF RM: (1) IDENTIFY HAZARDS (2) ASSESS HAZARDS (3) DEVELOP CONTROLS & MAKE DECISIONS (4) IMPLEMENT CONTROLS (5) SUPERVISE & EVALUATE

4. Sub-task / Sub-Step of Mission / Task	5. Hazard	6. Initial Risk Level	7. Control	8. How to implement / Who will implement	9. Residual Risk Level
				How: Who:	
				How: Who:	
				How: Who:	
				How: Who:	
				How: Who:	

Additional entries for Items 5-9 are provided on Page 2

10. OVERALL RISK LEVEL AFTER CONTROLS ARE IMPLEMENTED:

☐ Extremely High ☐ High ☐ Medium ☐ Low

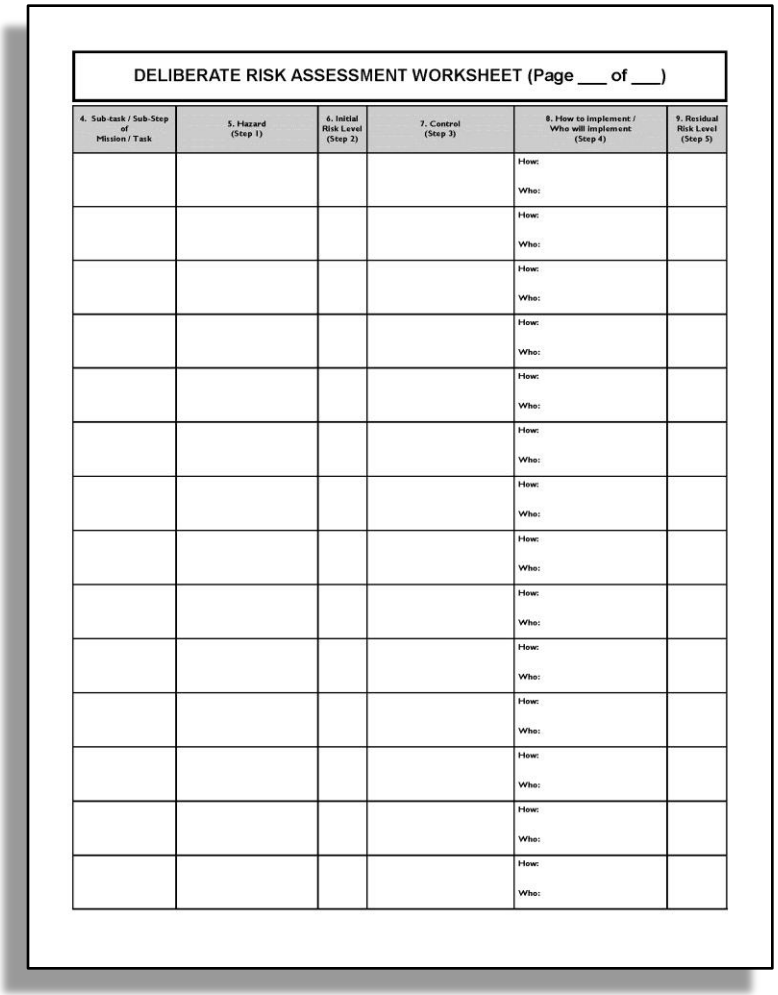
11. OVERALL SUPERVISION PLAN and RECOMMENDED COURSE OF ACTION (COA)

12. APPROVAL / DISAPPROVAL of MISSION / TASK

☐ APPROVE ☐ DISAPPROVE ADDITIONAL GUIDANCE:

A. Last Name /First Name / Middle Initial	B. Rank / Grade	C. Duty Title / Position	D. Signature of Decision Authority

AF FORM 4437 (per AFDPO as of 6 Feb 2012)



DELIBERATE RISK ASSESSMENT WORKSHEET (Page ___ of ___)

4. Sub-task / Sub-Step of Mission / Task	5. Hazard (Step 1)	6. Initial Risk Level (Step 2)	7. Control (Step 3)	8. How to implement / Who will implement (Step 4)	9. Residual Risk Level (Step 5)
				How: Who:	
				How: Who:	
				How: Who:	
				How: Who:	
				How: Who:	
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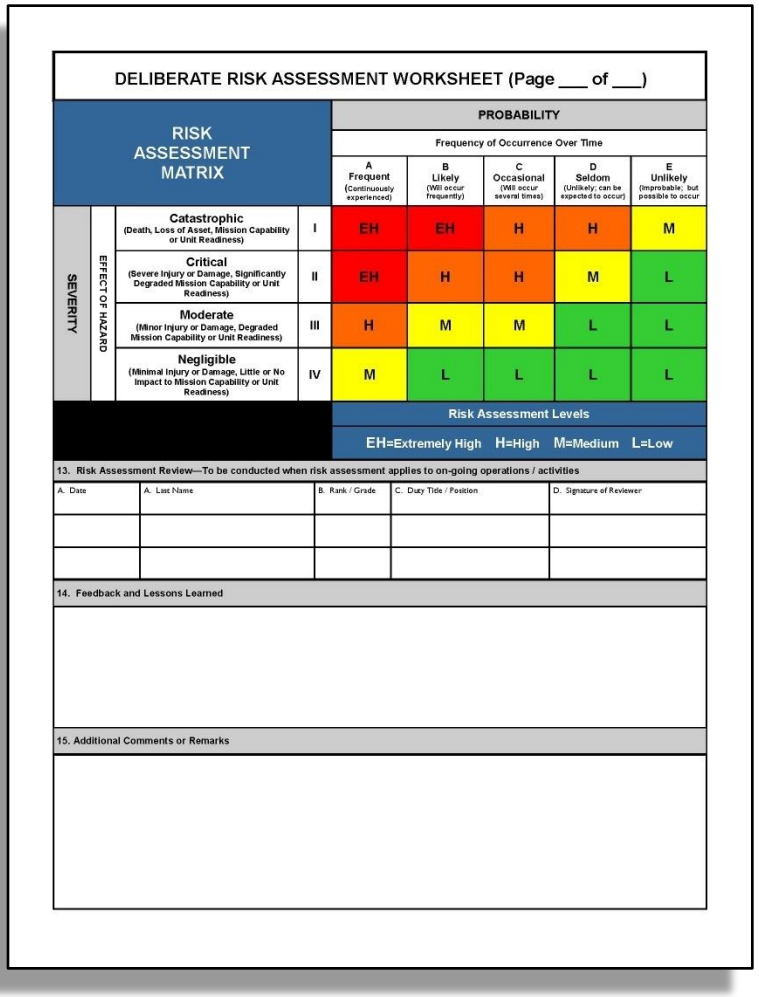
U.S. AIR FORCE

Deliberate Risk Assessment Worksheet

(AF Form 4437)



DELIBERATE RISK ASSESSMENT WORKSHEET (Page ___ of ___)

RISK ASSESSMENT MATRIX				PROBABILITY				
				Frequency of Occurrence Over Time				
				A Frequent (Continuously experienced)	B Likely (Will occur frequently)	C Occasional (Will occur several times)	D Seldom (Unlikely, can be expected to occur)	E Unlikely (Improbable, but possible to occur
SEVERITY	EFFECT OF HAZARD	Catastrophic (Death, Loss of Asset, Mission Capability or Unit Readiness)	I	EH	EH	H	H	M
		Critical (Severe Injury or Damage, Significantly Degraded Mission Capability or Unit Readiness)	II	EH	H	H	M	L
		Moderate (Minor Injury or Damage, Degraded Mission Capability or Unit Readiness)	III	H	M	M	L	L
		Negligible (Minimal Injury or Damage, Little or No Impact to Mission Capability or Unit Readiness)	IV	M	L	L	L	L

Risk Assessment Levels

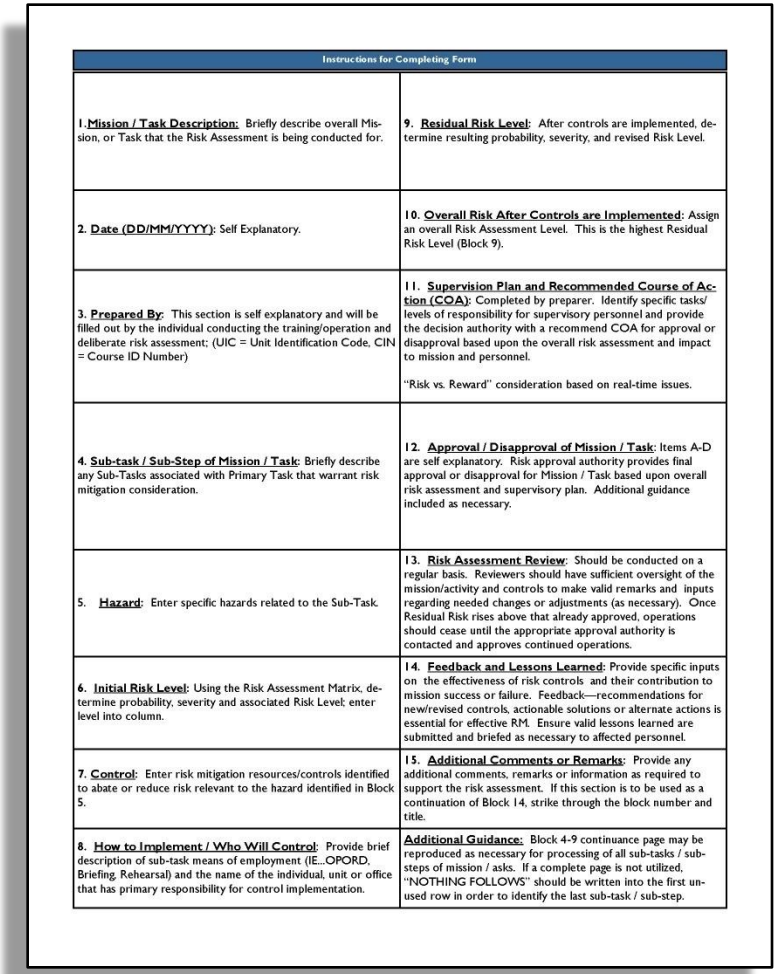
EH=Extremely High H=High M=Medium L=Low

13. Risk Assessment Review—To be conducted when risk assessment applies to on-going operations / activities

A. Date	A. Last Name	B. Rank / Grade	C. Duty Title / Position	D. Signature of Reviewer

14. Feedback and Lessons Learned

15. Additional Comments or Remarks



Instructions for Completing Form

1. **Mission / Task Description:** Briefly describe overall Mission, or Task that the Risk Assessment is being conducted for.

2. **Date (DD/MM/YYYY):** Self Explanatory.

3. **Prepared By:** This section is self explanatory and will be filled out by the individual conducting the training/operation and deliberate risk assessment; (UIC = Unit Identification Code, CIN = Course ID Number)

4. **Sub-task / Sub-Step of Mission / Task:** Briefly describe any Sub-Tasks associated with Primary Task that warrant risk mitigation consideration.

5. **Hazard:** Enter specific hazards related to the Sub-Task.

6. **Initial Risk Level:** Using the Risk Assessment Matrix, determine probability, severity and associated Risk Level; enter level into column.

7. **Control:** Enter risk mitigation resources/controls identified to abate or reduce risk relevant to the hazard identified in Block 5.

8. **How to Implement / Who Will Control:** Provide brief description of sub-task means of employment (IE...OPORD, Briefing, Rehearsal) and the name of the individual, unit or office that has primary responsibility for control implementation.

9. **Residual Risk Level:** After controls are implemented, determine resulting probability, severity, and revised Risk Level.

10. **Overall Risk After Controls are Implemented:** Assign an overall Risk Assessment Level. This is the highest Residual Risk Level (Block 9).

11. **Supervision Plan and Recommended Course of Action (COA):** Completed by preparer. Identify specific tasks/levels of responsibility for supervisory personnel and provide the decision authority with a recommend COA for approval or disapproval based upon the overall risk assessment and impact to mission and personnel.

"Risk vs. Reward" consideration based on real-time issues.

12. **Approval / Disapproval of Mission / Task:** Items A-D are self explanatory. Risk approval authority provides final approval or disapproval for Mission / Task based upon overall risk assessment and supervisory plan. Additional guidance included as necessary.

13. **Risk Assessment Review:** Should be conducted on a regular basis. Reviewers should have sufficient oversight of the mission/activity and controls to make valid remarks and inputs regarding needed changes or adjustments (as necessary). Once Residual Risk rises above that already approved, operations should cease until the appropriate approval authority is contacted and approves continued operations.

14. **Feedback and Lessons Learned:** Provide specific inputs on the effectiveness of risk controls and their contribution to mission success or failure. Feedback—recommendations for new/revised controls, actionable solutions or alternate actions is essential for effective RM. Ensure valid lessons learned are submitted and briefed as necessary to affected personnel.

15. **Additional Comments or Remarks:** Provide any additional comments, remarks or information as required to support the risk assessment. If this section is to be used as a continuation of Block 14, strike through the block number and title.

Additional Guidance: Block 4-9 continuance page may be reproduced as necessary for processing of all sub-tasks / sub-steps of mission / asks. If a complete page is not utilized, "NOTHING FOLLOWS" should be written into the first unused row in order to identify the last sub-task / sub-step.

Consolidated EHS Survey

- Environmental Health and Safety Building Surveys
  - Baseline
  - 5-year updates (or sooner based on risk)
- Owner / Operator Risk (not “OSH”)
  - 41 CFR (property management) Part 102-80 (Safety and Environmental Management)
  - 29 CFR Part 1960 Subpart E (specific GSA requirements)
- Disciplines – 0803/0690/0804/0819 (not 018 or 028)
- Uses
  - Protect occupants
  - Asset repair and investment planning
- Comprehensive, but not investigative
- Follow-on investigations where needed

Asset Risk Management

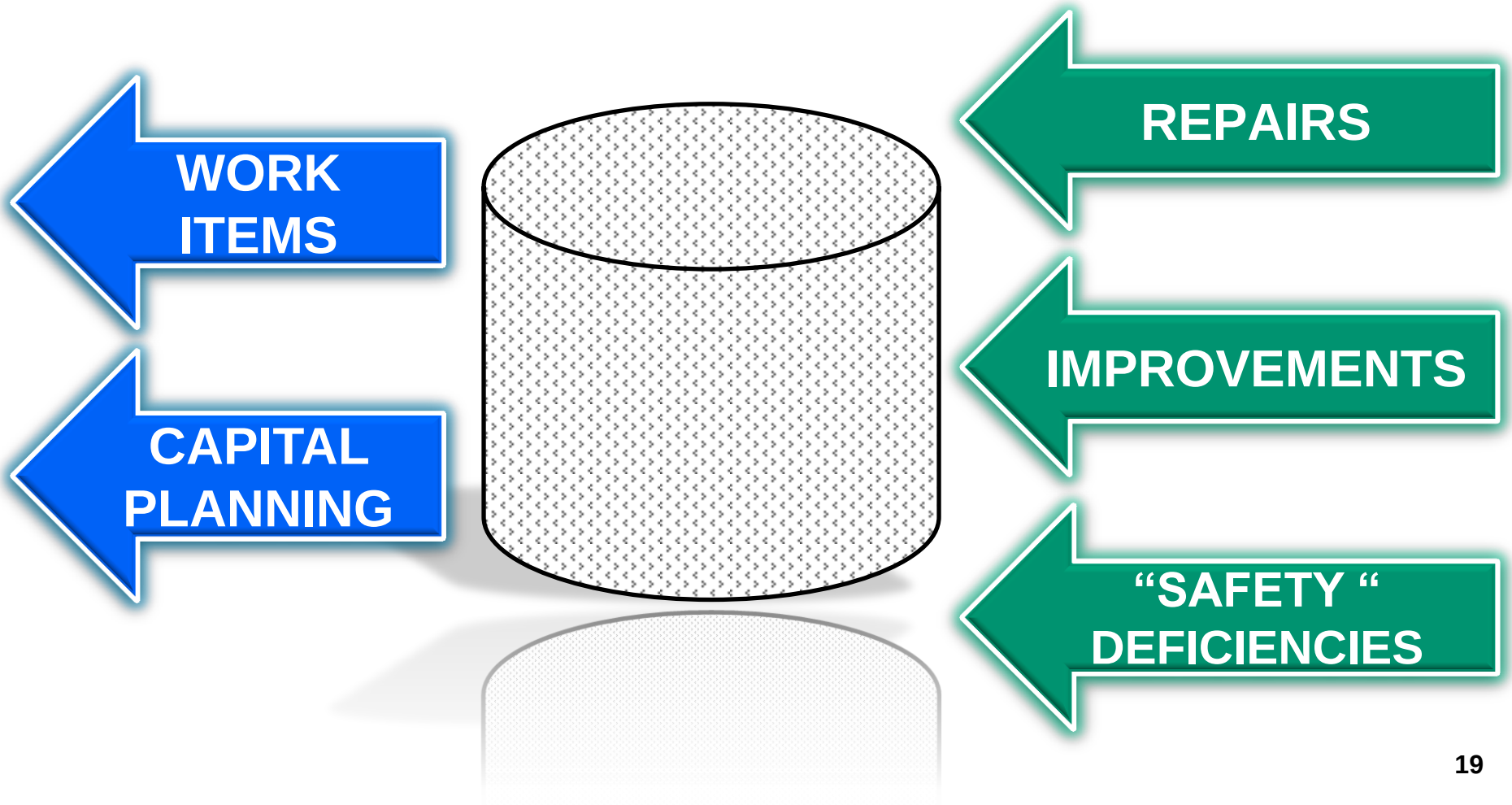
EHS SURVEY REDESIGN

- Attribute Data
  - Pre-review and On-Site (examples)
  - Insurance Guides
- Condition Data
  - Checklists (examples)
  - Risk Matrix (4 x 4 to 5 x 5, multi-impact)
- Loss Data
  - Property, Tort and Environmental (small data)
  - Workers Compensation (from BLS)

CONSEQUENCE ASSESSMENT GUIDANCE

	Specific Impacts				Universal Impacts	
	Environmental	**Human**	**Property**	**Mission**	**Financial**	**Political**
Scope and Applicability ⇨	Contamination of air, water soil, and biota	Injury or illness to tenants, GSA employees, contractors, visitors, or the general public	Fire, contamination, or damage to facilities. equipment, furnishings, or personal property	Degradation or loss of federal agency mission. (Critical / Major / Minor missions)	Loss of revenue, cost to repair, rebuild, or remediate, workers' compensation and death benefits, environmental fines and compliance order costs.	Negative public relations, IG / GAO / Congressional inquiry or investigation. "NOVs"
	Specific Level Definitions					
A CATASTROPHIC	Irreversible long-term impacts.	Death, permanent disability or irreversible health effect	Loss of large building	- Critical mission loss >2 weeks - Major mission long-term loss	$10M to $100M+ Large Prospectus	National press > 1 week
B SEVERE	Reversible long-term damage.	Severe injury, potential long-term health effect	- Damage to large building - Loss of medium building	- Critical mission loss <2 weeks - Major mission loss >4 weeks - Minor mission long-term loss	~$2.6M - $10M Above Prospectus threshold	Regional press > 1 week
C SIGNIFICANT	Reversible medium-term damage.	Minor injury or reversible health effect.	- Damage to medium building / area - Loss of small building	- Major mission loss <4 weeks - Minor mission loss >6 weeks	$100K to ~ $2.6M Large Repair and Alteration	Local press
D MODERATE	Localized impact.	First aid, no lost time.	- Damage to small building / area	- Minor mission loss <6 weeks	$10K to $100K Above Repair and Alteration Threshold	Internal to agency
E MINOR	De minimis regulatory violation	De minimis Code violation	De minimis Code violation	- Temporary mission adaptation	< $10K	Limited to building occupants

Inventory Reporting Information System (IRIS)



Plans and Challenges

- Standardize process nationally
  - In house, contract or combination
- Normalize and Sum Risk Values (Database)
  - Attributes
  - Conditions (RAC)
  - Losses
- EHS as a Supportive Component
  - Physical Condition Surveys
  - Repair and Alteration Prioritization
  - Asset Business Plans (tiering)

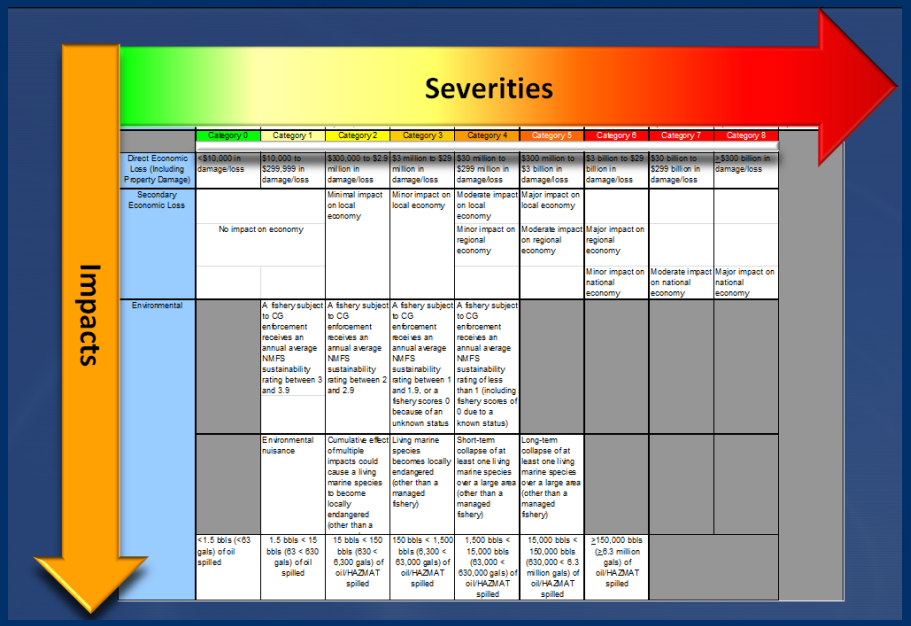
Risk Matrices

Systematic evaluation of the likelihoods & consequences across the scenario set (example set below)

Likelihood Categories

Frequency Score Descriptions	Frequency Scores
Continuous	730 events per year
Daily	365 events per year
Weekly	52 events per year
Monthly	12 events per year
Quarterly	4 events per year
Annually	1 event per year
Decade	1 event per 10 years
Half-century	1 event per 50 years
Century	1 event per 100 years
Millennium	1 event per 1,000 years

Consequence Equivalencies



- Deaths/Injuries
- Direct Economic
- Secondary Economic
- Maritime Mobility
- Environmental
- Law Enforcement
- National Security
- Civil Order

SAFETY & HEALTH LEARNING ALLIANCE

How does your organization accept risk?

- How do you define acceptable risk?
- Who can accept the risk?
- Who owns the risk?
- Who tracks the risks?

U.S. AIR FORCE

Organizational Risk Acceptance

- All Commanders / Directors and equivalents:
  - Ensure all subordinate personnel are trained in RM
  - Ensure RM principles, processes, tools & techniques are established to address specific operations, missions & activities (on- and off-duty)
    - Standardize across similar operations whenever possible
    - Identify & clearly establish specific risk acceptance authority levels & thresholds for elevating risk acceptance decisions
      - Acceptance Levels may vary depending upon specific operations, activities, units, personnel involved, etc.
    - Identified risk acceptance levels must be clearly understood by affected personnel & documented whenever possible

Risk Management Fundamentals - The Basics

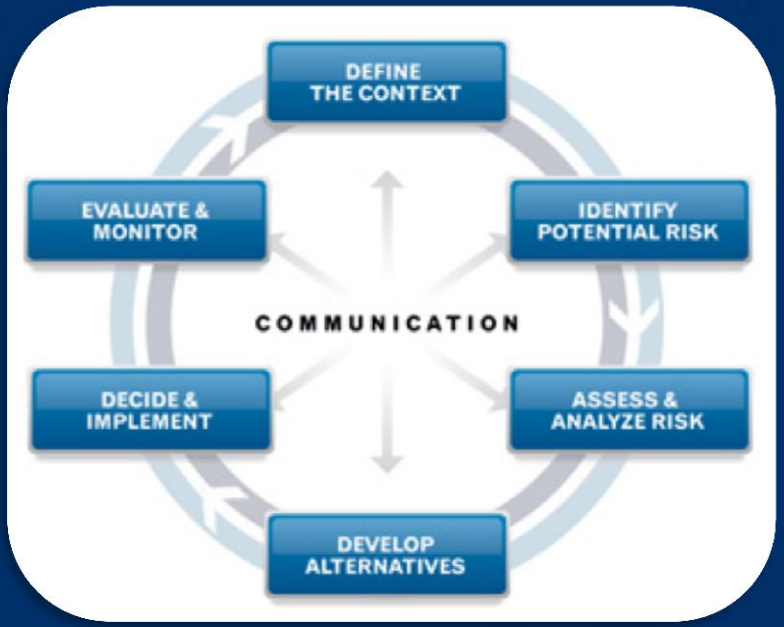
What are the outcomes to achieve and what are the risks to them?

Did the alternatives work?

"Risks to" and "Risks from"

Accept, Avoid, Transfer or Control Risks

How likely and What consequences?



What could and what should I do about it?

Risk Communication and Perception is Key

SAFETY & HEALTH LEARNING ALLIANCE

How is risk is communicated up the management chain?

- How does your organization get risk management buy-in and participation?
- What type of documentation is required?
- What is the overall flow?
- Who has decision making authority/responsibility?

Coast Guard Strategic Risk Framework

U.S. COAST GUARD

Unknown Deterrence Value

Assessed Risk to the Maritime Domain

Unknown Prevention Value

Estimated Overall Expected CG Response Risk Reduction Value

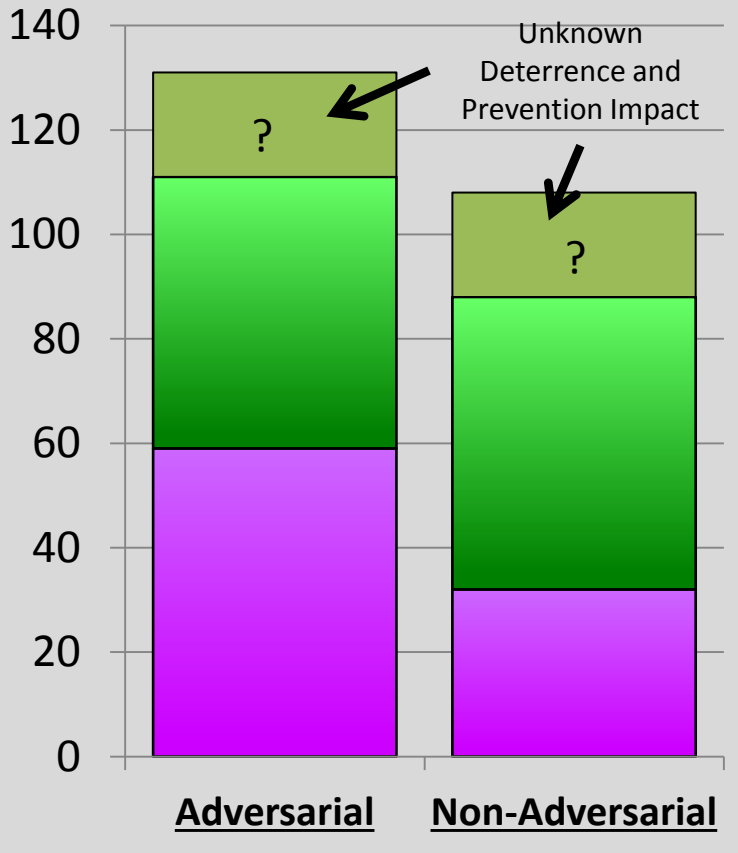
Estimated Overall Expected Loss After CG Risk Reduction

Coast Guard's Risk Reduction Programs

Maritime Law Enforcement	Maritime Response	Defense Operations
Maritime Security Operations	Maritime Transportation System	Maritime Environmental Protection

Assessed Impacts to Society

Death and Injury	Illicit Drugs Smuggling	Fish Stock Non-Sustainability
Environmental Damage	Direct Economic Loss	Illegal Migrant Entry
Terrorism Impacts	U.S. EEZ Encroachments	Introduction of Invasive Species



SAFETY & HEALTH LEARNING ALLIANCE

Available risk management training

- What are the key components of your risk training?
- What have been the results of your risk training? Is it working for your organization?
- What part of your training program has made the biggest impact on risk management?

AF Risk Management Training

U.S. AIR FORCE

- AF RM Fundamentals: Basic RM process, concepts & tools
  - Mandated (one time career) for all AF Personnel (Active Duty, Reserves, Guard, Govt. Civilians – non-contractors)
  - Computer based via AF Advanced Distributed Learning Service website
- AF RM Application & Integration: Expert level RM Course
  - Mandated (one time career) for HAF/MAJCOM RM Process Managers, Wing & subordinate RM Instructors / Advisors
  - Classroom based at AFSEC; future deployment to MAJCOMs to teach in-house (better use of funding)
- Periodic RM Briefings/Presentations: Unit-specific training
  - Unit Commanders and RM Staffs responsible for content and presentations
  - RM topics focused on local issues & mitigation strategies
- Future RM Training Development (when resources permit)
  - AF RM Supervisor Course
  - AF RM Senior Leader Course

SAFETY & HEALTH LEARNING ALLIANCE

Lessons Learned About Risk Management

- Key points to remember about risk management

U.S. AIR FORCE

Lessons Learned

- Risk Management is not just about Operations anymore!
  - It must be emphasized in both on- and off-duty situations
  - The AF loses nearly 10 times more individuals in off-duty mishaps than we do in on-duty mishaps
- Overall RM Programs are necessary for compliance & to ensure personnel are trained & held accountable for sound RM practices, but locally defined issues must be the focus of any effective program
- Senior leadership is key to all effective RM programs
- Personnel buy-in on risk mitigation strategies is necessary to ensure that they are implemented
- There is no simple solution for managing risk & everyone must be vigilant for change

Risk Management Should Be Ubiquitous

Risk Management is present in large scale organizational decisions to everyday life choices. It manifests as a decision support framework to compare possible future consequences (both positive and negative) with an investment, and identifying an acceptable balance.

Risk is not just…

- Threat
- Vulnerability
- Frequency
- Likelihood of occurrence
- Consequence

DHS Lexicon: Risk -

Potential for an *unwanted outcome* resulting from an incident, event, or occurrence, as determined by its likelihood and the associated consequences.

Risk is/can be …

- A ***function*** of likelihood *and* consequence
- Prospective
- Expected loss over time
- Always relative to some goal or objective.
- A measure of performance
- Accepted, shared, transferred or mitigated, but
  - **Must not be ignored**

SAFETY & HEALTH LEARNING ALLIANCE

Wrap Up and Next Event

- Visit the SHLA Web site at nsc.nasa.gov/SHLA
  - Video of this presentation, slides, event summary
- Invite colleagues and other organizations to join us for our next event
  - "Mandatory Requirements and Standards"
  - June 19, 2014 at 1 p.m. EDT
  - Join the panel by contacting Mike Lipka at Michael.J.Lipka@nasa.gov or 440.962.3172
- Click here → SHLA Event Survey We'd like to hear your feedback